

MASONRY BLOCK ANCHOR BOLT ASSEMBLY

CROSS REFERENCE TO RELATED APPLICATIONS

Not Applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

REFERENCE TO A MICROFICHE APPENDIX

Not Applicable.

BACKGROUND OF THE INVENTION

TECHNICAL FIELD

This invention relates to an anchor bolt assembly and, more particularly, to an anchor bolt assembly including a toggle member for effectively securing a ledger to a masonry block commonly used in the building construction industry.

PRIOR ART

Foundations of houses and other buildings are commonly constructed from construction blocks which are also commonly referred to as cinder foundation blocks or masonry blocks. These blocks are manufactured with two hollow cores which extend through the block in a vertical orientation when the blocks are properly stacked. The cores are separated by a cross-member which is located at the midsection of the block.

Anchor bolts secured in a masonry block have long been used to secure or tie the frame of a building or house to the construction block foundation. Recent building codes require that anchor bolts mounted in masonry walls provide for at least one inch of grout around the bolt on all sides. To accomplish this, a one-inch bolt, for example, must be secured at the center of a three-inch hole prior to pouring the grout. Additionally, code requires that the grout extend from within the masonry wall to the exterior face of the wall. Current practice accomplishes this by boring mounting holes in a masonry wall; placing anchor bolts into bolt holes in a plywood template; supporting

the plywood plate against the outers surface of the masonry block with the anchor bolts extending into the masonry wall through the mounting holes; pouring grout into the masonry wall to secure the bolts within the wall; and, finally, removing the plywood template to expose the bolts. Such practice generally does not meet specific code requirements because the bolts do not remain centered within the mounting holes.

Further, because the template is usually long enough to support a line of bolts, it is placed on the wall before placing the bolts through the mounting holes. To enable this, the bolt holes must be large enough to accommodate the dog-leg conformation normally found in such anchor bolts so that they may be placed into the template after it is mounted to the masonry wall. This generally results in the bolts being held in a non-horizontal or non-centered manner and, therefore, presents an appearance of sloppy work. In addition, the plywood templates may be cupped or have other irregularities that cause the grout to seep onto the front face of the masonry. Recent natural disasters including earthquakes, floods, and hurricanes have exposed the inadequacies of the above method problems when securing an anchor bolt to a construction block wall.

Accordingly, a need remains to overcome such shortcomings by providing an anchor bolt assembly that is easier to center within a masonry block hole while providing improved stability and reduced installation time.

BRIEF SUMMARY OF THE INVENTION

In view of the foregoing background, it is therefore an object of the present invention to provide anchor bolt that allows a ledger to be secured to a masonry wall without requiring a template to be attached thereto before grout is poured into the masonry block's hollow core. These and other objects, features, and advantages of the invention are provided by an anchor bolt assembly including a bolt having an elongate portion and an arcuate end portion integral therewith. The elongate portion has an outer surface that includes a plurality of grooves formed therein. The arcuate end portion is positioned within a hollow core of a masonry block with the elongate portion extending outwardly thereof.

The assembly further includes a toggle member positionable along the elongate portion and adjacent the arcuate end portion so that the toggle member becomes disposed within a hollow core of a masonry block after it is positioned along the elongate portion. The toggle member preferably has a front surface engageable with an interior surface of the masonry block. A nut is threadably positionable at the elongate portion and opposite to the toggle member so that the nut becomes disposed at an exterior of the masonry block. The assembly may further include a washer removably positionable between a ledger member attachable to a masonry block and the nut.

The toggle member preferably includes a plurality of end portions movable towards each other when the toggle member is moved towards a compressed position. The plurality of end portions are positioned further away from the arcuate end portion of the bolt when the toggle member is moved towards a compressed position than when the toggle member is at a relaxed position.

Advantageously, the need to temporarily attach a template to a masonry block, as the grout is poured therein, is effectively eliminated.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

The novel features believed to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective view showing an anchor bolt assembly for attaching a ledger to a masonry block, in accordance with the present invention;

FIG. 2 is a partial side elevational view of FIG. 1;

FIG. 3 is a side elevational view of FIG. 1 wherein the assembly is used in an alternate application; and

FIG. 4 is a side elevational view of a plurality of the assemblies shown in FIG. 1, which are being used to secure a footing elevation.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which a preferred embodiment of the invention is shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiment set forth herein. Rather, this embodiment is provided so that this application will be thorough and complete, and will fully convey the true scope of the invention to those skilled in the art.

The assembly of this invention is referred to generally in FIG. 1 by the reference numeral 10 and is intended to provide an anchor bolt for use in the construction industry. It should be understood that the assembly 10 may be used in a variety of industries and should not be construed as having limited application to only the construction industry.

The assembly 10 includes a bolt having an elongate portion 12 and an arcuate end portion 13 integral therewith. The arcuate end portion 13 defines an end portion of the bolt commonly known as the bolt head. The elongate portion 12 defines the length of the bolt and preferably includes a plurality of grooves formed along an outer surface thereof so that a conventional screw or nut 15 can be threadably engaged therealong. The assembly 10 further includes a toggle member 14 including a pair of movable members engaged to one another at respective end portions thereof. The arcuate end portion 13 preferably has a smooth outer surface for limiting the threadable movement of the toggle member 14 along the elongate portion 12.

The arcuate end portion 13 of the bolt is disposed within a hollow core of a conventional cinder block or masonry block 11. Thus, the elongate portion 12 extends outwardly from the wall of the masonry block wherein a nut 15 is engaged therealong for assisting to securely maintain a ledger (not shown) against the outer surface of the masonry block 11. A washer 16 may be inserted along the elongate portion 12 and disposed between an outer surface of the ledger and the nut 15 for assisting to maintain same at a stationary position, in a conventional manner.

The toggle member 14 is disposed within the hollow core of the masonry block 11 and is at a relaxed position when it is engaged along the inner wall thereof. When the nut 15 is not securely fastened to the ledger, the toggle member 14 can be moved

to a stressed position. This can be achieved by moving the opposed end portions of the toggle member 14 towards one another and away from the arcuate end portion 13 of the bolt, as perhaps best shown in FIG. 2. Accordingly, the toggle member 14 collapses and can be moved through a mounting hole. Moreover, the toggle member 14 presses against the inner wall of the masonry block 11 for assisting to maintain the ledger at a secure position. Of course, the position of the toggle member 14 can be adjusted as needed based upon the intended application, such as when engaged against plywood, as shown in FIG. 3.

Advantageously, assembly 10 allows an operator to attach a ledger (not shown) to the masonry block 11 wall prior to pouring cement or grout into the hollow core of the masonry block. This facilitates inspecting the elevation and alignment of the ledger and bolt, which are embedded within the masonry block wall before the grouting process begins. Moreover, the assembly 10 effectively eliminates the need for using a conventional template, which often misaligns the bolt by moving same off-center when passing through the masonry block and thereby weakening the strength of the bolt. Accordingly, assembly 10 simplifies the layout of the bolt relative to the ends of the ledger.

As noted above, assembly 10 can be used to tightly secure the bolt through a masonry block 11 until grout or concrete is poured therein. This helps prevent the bolt from moving around when concrete is being poured thereon because, prior to pouring the grout or concrete, the assembly is inspected to make sure that it is accurately positioned against the masonry wall 11 and the ledger (not shown).

Now referring to FIG. 4, a pair of assemblies 10 are connected to a template 17 that is disposed above a footing elevation, well known in the construction industry. Advantageously, the assembly 10 allows the template 17 to be set at a desired footing elevation to ensure that the footing height is uniform. This eliminates the need for an operator to chip or adjust the surface of the footing to accommodate the variation in pitch cause by nuts 16 or unlevelled grout surface. Furthermore, the present invention helps maintain the bolt plumb and, therefore, eliminates the need to straighten the bolt, which can increase labor costs and weaken its associated strength.

While the invention has been described with respect to certain specific embodiments, it will be appreciated that many modifications and changes may be made by those skilled in the art without departing from the spirit of the invention. It is intended, therefore, by the appended claims to cover all such modifications and changes as fall within the true spirit and scope of the invention.